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Romans called this *jus enter gentes*, the French denominate it *droit des gens*, the Spaniards call it *derecho de gentes*, and we, for lack of a more specific term, call it international law. But law it is not; and, besides, if we admit the term at all, "law of nations" and "international law" are certainly not equivalents. The one implies an impossible condition of things, the other, though more approximately correct, would be more accurately described as international ethics or morality.

Furthermore, we are in the habit of describing what we call "international law" as "the natural law of individuals applied to nations," and when we are asked what this "natural law of individuals" may be, we reply readily that it is "the law of nature applied to moral actions," and that it consists of "rules which are common to all mankind," quite independent of the accidents of time, place, and circumstance. Now, this is little else than mere words without any definite import, for in reality there are not, and never have been, any such "rules." There is not a single, universal, fixed "rule" of human conduct which all men of all ages and countries have recognized in practice; there is no uniform moral code, written or unwritten, which peoples of all countries have even professed to obey.

But, we are told, there are certain "principles of justice, discoverable by right reason and established by usage," which *ought* to regulate the mutual relations of nations. But who shall accurately define "justice," and who shall give us an authentic standard of "right reason?" Public opinion in each sovereign state establishes a criterion of justice which rises no higher than the intellectual development or civilization of the people of that particular state; and what the people of one may consider "right reason" is often deemed wrong reason by those of another. Thus some regard all moral distinctions as merely conventional, others believe moral distinctions to have been "written in the heart of man by the finger of God." Most Christian peoples believe, or at least believe they believe, there is "a positive law, audible in conscience, which enjoins certain actions and forbids others," according to their respective suitableness or repugnance to the social nature of man. Others believe that conscience itself is merely the result of education and environment, consequently that there cannot be, in the very nature of the case, any positive moral standard. No matter how it originated, I presume that most people will agree that what we call "conscience" is nothing more than that faculty of the mind which takes cognizance of its own thoughts; that, even in the most latitudinal sense, the term can imply no more than a moral standard of action in the mind, and that this standard is always relative, that is, high or low, according to the degree of intellectual development.

We are in the habit of evading the consequences of these propositions by assuming, first, that moral distinctions have had eternal existence in the mind of the Creator, which never changes; and, second, that to Christian peoples *only* have been revealed the will of God. This would limit what we call "international law" to Europeans and their descendants on this continent; and it, moreover, assumes as a fact that, in our international relations we are governed by rules which, in their very nature, are unchangeable, which is absurd. For, reason about it as we may, we cannot get rid of the fact that our standard of morality is progressive, and therefore ever changing. There is always an advance from lower to higher conceptions of humanity and justice, and corresponding changes in public sentiment as to what is right and expedient in our international relations. The general consensus of the Christian world touching the abstract propositions of right and wrong is not what it was even one short century ago, and a century hence it will not be exactly what it is to-day. The time was when the most enlightened nations, including the one through which was derived our form of religion, spared neither age nor sex in battle. Later on, they spared non-combatants, but put all prisoners to death. Further on, the lives of prisoners were spared, but they were reduced to slavery. As civilization advanced, prisoners of war were ransomed by the payment of money or its equivalent. Finally, they were put on parole and regularly exchanged. Not many centuries ago, Christian nations went to war for the avowed purposes of conquest and selfish aggrandisement. After this, war was still held to be justifiable if waged for the

declared purpose of opening new avenues of trade. Later on, war could be justified only on grounds of reasonable apprehension for national safety, or for the vindication of national honor. Perhaps the time is not very remote when Christian peoples will realize that there is a higher method of settling international disputes than that adopted by the ants and beetles, and then the principle of arbitration will be universally accepted.

Hitherto, what we call our international law has been deemed inapplicable to pagan nations and savage tribes, and in our dealings with both we have not always been governed by our own rules of justice. Our apology for this has been the assumption that such peoples are not themselves governed by the rules of justice which we acknowledge. But, if we are subject to a system of ethics which we profess to believe of divine origin, is not that, of itself, an all-sufficient reason for not departing from it in our dealings with other than professedly Christian peoples? It would seem that, if we are more than a community of hypocrites, our relations with the indigenous peoples of this continent ought to have taught us this wholesome lesson long ago.

To sum up, then, our so-called international law is but public opinion sanctioned by usage among those who call themselves Christians. But this public opinion necessarily changes with the progressive stages of intellectual development. Therefore it is not, and cannot be, a "fixed rule" of conduct in the reciprocal relations of nations. We err in calling it a "science," because our conceptions of its fundamental principles are neither clearly defined nor easily referable to known facts. And we err in limiting its application to so-called Christian nations, because we thereby contradict our professions and impair confidence in our sincerity.

BRITISH STONE CIRCLES.—II. STONEHENGE.¹

BY A. L. LEWIS, LONDON, ENGLAND.

IF the circles at Abury (or Avebury) claim the first notice on account of their great superiority in size above all others, Stonehenge naturally, and for many reasons, takes the next place to them. Stonehenge is eighteen miles south of Abury; the nearest town to it is Amesbury (three miles), but as Amesbury is not on any line of railway, Salisbury (Great Western or South Western railways) is the most convenient place from which to visit it; the distance is eight miles, six by road and two across the plain after leaving the road, and there is now no refreshment house on the way. The British entrenched hill, on which the Roman, Saxon, and Norman city stood, and which, under the title of Old Sarum, returned representatives to Parliament till 1832, at which time it was uninhabited, will attract notice, and may be visited either in going or returning.

The outer circle at Stonehenge is 100 feet in diameter, and if it were ever completed (which is a point in dispute) consisted of 30 stones, averaging 13½ feet in height; they were roughly squared and had two knobs or bosses worked on the top of each, and they were connected by smaller stones, each of which had a hole at each end, made to fit on the knobs of the upright stones on which it rested; these arrangements are found in no other circle, and are of themselves sufficient to render Stonehenge perfectly unique. One stone of this circle, still standing in its place, is shorter and slighter than the others, and this has led to doubts as to whether the outer circle were ever complete. Inside the outer circle were, first, a circle of small stones, the original number of which is uncertain, and, second, inside these five trilithons or groups of three stones, two upright and one connecting their tops, these capstones, like those of the outer circle, were kept in their places by holes fitting on knobs cut on the tops of the uprights, but while each upright of the outer circle had two knobs, and the chain of capstones was continuous, the uprights of the trilithons had but one knob each, and each pair of uprights with its capstone was separate from its neighbor; these trilithons were arranged in the form of a horseshoe, the highest (of which the uprights were 22 feet above ground) being in the centre, and the opening of the horseshoe, which is 44 feet wide, being toward the northeast. Inside this horseshoe of trilithons was a horseshoe

¹ No. I., Abury, appeared in No. 529, March 24.

of smaller stones, originally perhaps 19 in number, and from 6 to 9 feet high, the highest being in the middle, and inside these, and in front of the highest trilithon, is a flat stone, about 17 feet long and 3 wide, which is commonly called the altar stone, though, if sacrifices were ever offered there it would have been much more convenient to have had a smaller but higher altar standing upon this slab. There is a small stone lying inside the small inner horseshoe, which has two hollows and seems therefore to have been intended to rest upon two small upright stones, but no stones suitable for its support now exist, and it is possible that this stone may have stood on two small stones on the slab already mentioned, and may have been the actual altar. It has, however, been thought that it was the capstone of a small trilithon which stood in the middle of the open side of the horseshoe formed by the large trilithons, but there is no evidence as to its original position or use or as to the former existence of any small trilithon.

The smaller stones or bluestones as they are called were brought from a great distance — Devonshire, Wales, or Ireland — but the larger stones forming the outer circle and the great trilithons were obtained from the surrounding plain. Nine of the inner bluestones and nineteen of the outer ones remain, some standing and some fallen; twenty-four of the stones of the outer circle are represented by standing or fallen stones (including fragments), and six of its lintels or cross-stones are still in position; of the trilithons two are complete and the other three are more or less ruined, though all the stones of which they consisted are there, some broken, some entire.

The circles are surrounded by a slight ditch and bank, 300 feet in diameter, from which an avenue defined by earthen banks leads in a northeasterly direction for about 1800 feet, when it divides into two branches, the most northerly of which leads towards a space enclosed by earthen banks and called by Stukeley the "Cursus." Just inside the ditch and bank are two barrows, on opposite sides of the circles, and so placed that a line from one to the other passes through the centre of the circles. There are also two single stones near the inner circumference of the ditch placed like the barrows on opposite sides of the circles and so that a line from one to the other passes through the centre of the circles. At the point where the avenue joins the ditch there is a large stone lying flat, and nearly 100 feet along the avenue stands a rough stone, called the "Friar's Heel," in such a position that anyone standing on the flat stone called the "altar," already mentioned, may see the sun rise over its tip, or nearly so, on Midsummer morning, a fact which is generally verified by several people every year. It has been said that the flat stone between the Friar's Heel and the circles formerly stood upright, and hid the former from the latter, and that the coincidence as to the sunrise was therefore not intentional; but if the flat stone ever were upright the sun would have appeared to rise over it, and if neither stone existed the whole arrangement of the circles and avenue would still direct attention to the northeast or midsummer sunrise quarter.

Stonehenge has been attributed to various peoples, ranging from Atlanteans of 10,000 B.C., to Danes of the ninth century of our era, and numerous suggestions have been made as to its object. Two or three archaeologists of late years have endeavored to show that it is merely the skeleton of a vast tower of dry or uncemented masonry, and the visitor must form his own idea as to the probability of this view. Burials would seem to have taken place in the centre, as bones and iron armor were dug up there in 1620, but this does not show that burial was the only or even the chief object for which the circles were constructed. Perhaps the view that best fits all the facts is that a circle or circles with avenue and outlying stones so arranged as to make it suitable for sun-worship existed here in very early times, and that long afterwards, in the dark period between the Roman rule and the Saxon domination, certain murdered Britons were buried in the circles, which were restored and re-arranged as a monument to their memory. Stonehenge, while it has much in common with the other British circles, has also so many points of difference from them, that it seems as though it must have had a special history of its own.

LETTERS TO THE EDITOR.

**** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

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What is Biology?

ORIGINATING from the time of the appearance of Dr. Campbell's book¹ on biological instruction, a discussion is for the present time being held. Professor C. MacMillan opened this discussion in some very interesting articles,² the main feature of these being a sharp criticism of the way in which biological science has been and is taught in the colleges and universities. Mr. Francis H. Herriek³ has tried to save the reputation of the biological departments in pleno. As the question of a clear and logical definition of the term biology meets with some of my own considerations, I should like to make a few remarks on this side of the point; the position of botanical science in the scientific institutions being merely a question of power laid in the hands of the director or professor of such institutions, I shall leave this in better hands.

It would be well, indeed, if we could get a logical definition of biology, and if we could succeed in removing from the text-books the old definition that "biology is the science of living things." Doing this, we would avoid much confusion, especially among the students — and there are many of them yet — who think that the physiological science is still a well established branch of natural science, and not merely a subdivision of a more or less heterogeneous "biology."

LaMarck used, first of all, the word biology, and, afterwards, from 1802 to 1822, G. R. Treviranus wrote a very remarkable book,⁴ defining biology as the philosophy of living nature. Singularly, the idea of the range of living nature has, in the course of time, been limited, instead of broadened; so we see how the scientists of old times saw, in the fire, a manifestation of life. Oken, in his "System der Biologie," adopted the definition of Treviranus, while the second and third quarters of this century created physiological schools that fought against the "natural philosophers," and brought forth an experimental physiology.

When the profound thinking of Ch. Darwin (not especially of all his pupils and successors) caused a world-wide sensation, and cast new light upon natural history, the term became rather limited instead of broadened, and, in fact, from an evolutionary standpoint, we cannot, as has been done,⁵ regard biology as "the science of living things." Biology has grown up with the teachings of Darwin, it is closely connected with evolutionary ideas, and, logically, appears to us in view of these teachings; therefore, we must frame our definitions in accordance therewith.

Huxley's view of the matter was taken up, and has been followed ever since, though now and then it has been modified. One of these modifications appears in a very reputable text-book,⁶ biology being defined as "the science which treats of the properties of matter in the living state;" physiology, however, is "the science of action and function, essentially dynamical." I am sure that we could point out many instances of action and function that would never be classified under the heading of physiology or even biology, nay, "general biology." On the other hand, I doubt if physiological science is really characterized by the word dynamical; in other words, if "physiological action and function" necessarily presupposes something "dynamical."

¹ John P. Campbell, "Biological Teaching in the Colleges of the United States," Bureau of Education, Circular of Information, No. 9, 1891.

² Botanical Gaz., xvi., p. 301, 1892 (see also pp. 260 and 336). Science, April 7, 1893, p. 184.

³ Science, April 21, 1893, p. 220.

⁴ Biologie oder Philosophie der lebenden Natur., Vol. 1-6, 1802-1822.

⁵ Huxley, "On the Study of Biology (Lectures on Evolution)." See "Humboldt Library," No. 36, 1882, p. 37.

⁶ Sedgwick and Wilson, "General Biology," New York, 1886, pp. 7-9.